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Report of the

FAO/UNEP EXPERT CONSULTATION ON CONTAMINANT MONITORING — DATA ON CONTAMINANTS IN AQUATIC ORGANISMS

Rome, 12-16 November 1974

with the cooperation of the
United Nations Environment Programme

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ROME, 1975

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

UNITED NATIONS ENVIRONMENT PROGRAMME

REPORT OF THE

FAO/UNEP EXPERT CONSULTATION ON CONTAMINANT MONITORING

FAO Headquarters, Rome, Italy, 12-16 November 1974

DATA ON CONTAMINANTS IN AQUATIC ORGANISMS

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, March 1975

PREPARATION OF THIS REPORT

This report was prepared as part of a co-operative project of the United Nations Environment Programme entitled

Data on Contaminants in Aquatic Organisms

with the Food and Agriculture Organization of the United Nations as co-operating agency.

FAO acknowledges the valuable work of the Consultant

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1. Adoption of Agenda and Related Procedural Matters

1.1 Mr.D.W.Hagborg opened the Consultation in his capacity as Secretary and introduced Mr.E.F.Akyüz, Senior Fishery Officer, FAO Fishery Resources & Environment Division, who welcomed the participants on behalf of Dr.H.Kasahara, Director, FAO Fishery Resources & Environment Division.

1.2 Mr.Akyüz subsequently introduced Mr.P.J.Mahler, Senior Officer (Natural Resources and Human Environment), FAO Agriculture Department, who, as Co-ordinator of FAO/UNEP projects, provided the Consultation with background information on the FAO/UNEP activities and focused the attention of the Consultation on areas to which they would provide a valuable contribution. He emphasized the requirement for a certain amount of compatibility to exist among the various FAO/UNEP projects, and informed the group that incipient planning was underway for the development of a periodic synthesis of all data collected by FAO/UNEP projects. Some discussion ensued regarding research and monitoring concepts.

1.3 The draft agenda and schedule of work were reviewed and adopted, and the list of documents established. Mr.J.B.Stern (Canada) was elected Chairman for the Consultation.

1.4 Rapporteurs were appointed as follows:

Agenda Item	Rapporteur (s)
1	Mr.D.W.Hagborg
2.1	Mr.P.J.Mahler, Mr.R.K.Malik, Mr.R.Garm, Mr.E.F.Akyüz
2.2	Mr.D.W.Hagborg
3.1	Mr.R.Van Thielen
3.2	Mr.J.Whitman
4.1	Dr.S.Hirao, Dr. K.Palmork
4.2	Dr.A.Morris
5.1-5.2	Dr.S.Hirao, Dr.K.Palmork
6	Mr.J.B.Stern

2. Introduction to the International Framework of Agencies concerned with Contaminants in Aquatic Organisms

The Consultation heard a report on the interest of the United Nations agencies as well as some inter-governmental organizations, in data on contaminants and their effect on living aquatic resources.

The main concern of FAO in the pollution of the aquatic environment has always been for its harmful effects on living aquatic organisms and the presence of contaminants in fishery products. Considerable research has been carried out on the effects of specific pollutants on the living resources of the oceans and inland water bodies. In most cases, however, we do not have adequate information to assess the total biological effects. If severe damage occurs, the effects are self-evident. Pollution is, however, an insidious process which may continue for a long period of time with no apparent effects until the rate of discharge exceeds the capacity of the system to recover. Therefore at all stages a close monitoring of such effects is required in order to understand the mechanism of such pollutants in harming living organisms and causing damage to fisheries, and ultimately to human health.

It has now been ascertained that pollutants might affect a given population in many ways:

(a) sub-lethal concentrations may interfere with the normal migration patterns of organisms

(b) pollutants interfering with the chemo-receptors of the organisms may affect the behavioural patterns essential to the survival of the populations

(c) long-term exposure to various levels of concentrations of pollutants may make an organism more susceptible to disease

(d) the eggs and larval forms of many species of organisms are more sensitive to pollution than are the adults, and therefore additional stress on the developing organisms might cause failure of enough individuals to survive and maintain the populations of the species

(e) interference with various physiological processes, without necessarily causing death, may also have an effect on the survival of a species

(f) pollutants may interfere with the nutrition of organisms by affecting their ability to find prey through adverse effects on digestion or assimilation of food or by contaminating the prey species so that it is not accepted by the predator

(g) many pollutants produce genetic effects which can have long-range significance on the survival of the species.

Further, the level of contaminants in fishery products may have serious economic repercussions in fishery markets.

In order to reach effective solutions and undertake economic research activities on these sectors an ACMRR/SCOR/ACOMR/GESAMP Working Party elaborated a programme on Global Investigation of Pollution in the Marine Environment (GIPME) within the concept of the Long-Term and Expanded Programme of Oceanic Exploration and Research (LEPOR) which provides the framework for co-ordinated international effort in this field.

The Consultation was also informed on the state of international aquatic pollution data collection, storage and referral systems. IOC (Intergovernmental Oceanographic Commission), as a joint mechanism for the Inter-governmental and UN agencies in the co-ordination of research activities in the oceans, has established a Joint Task Team on Inter-Disciplinary and Inter-Organizational Data and

Information Management Referral (IMAR) which was charged to develop data reporting and referral services including the pollution aspects of oceanographic research. IMAR recommended that a report be prepared on a possible system to cater for their needs which will meet the requirements of the world scientific community for referral and data storage and retrieval. A consultant, financed by UNEP, investigated the existing national and international systems, including World Data Centres A and B, UNEP (IRS), the IAEA Laboratory in Monaco, IHO, and ICES, and prepared a report proposing a Multi-Disciplinary Referral System to the Sources of Environmental Data and Information (MEDI). This was considered by the IMAR Task Team at the third meeting of ICES (Charlottenlund, Denmark) in October 1974, and a basic format for registration of sources of marine data and information was adopted. This form is based on the UNEP IRS International Input Form with extensions for specific marine information and data. The report of the meeting is now being prepared for submission to the governing bodies of all IMAR organizations. Parallel to the establishment of these systems, the International Referral System (IRS) of UNEP is also being established in Nairobi in consultation with national governments. The IRS network and the operation of national and other focal points will be the topic of a major international meeting in early 1975.

In reviewing the functions of the Fishery Data Centre (FDC), a permanent specialised centre within the World Data Centre systems, the Consultation noted that FDC is responsible for collecting, storing and analyzing:

(i) fishery data from international co-operative investigations, especially those sponsored by the IOC

(ii) data from FAO-executed fishery field projects financed by UNDP

(iii) such other data of national or international origin as may be deposited, as for example, from bilateral aid programmes, from FAO trust fund projects, and from activities of regional fisheries councils and commissions.

The fishery data includes data on the level of contaminants.

The Consultation was also informed on the scope of the Joint FAO/WHO Food Contamination Monitoring Programme, and the desirability of a close link between this programme and the projected FAO Fishery Data Centre contaminant data services. The FAO/WHO Programme will provide an internationally co-ordinated mechanism for the collection, storage and evaluation of data from national monitoring programmes on chemical and biological contamination of foods, and will include data on certain priority contaminants in fish and other edible aquatic organisms. The Consultation felt that the data systems being developed for the Fishery Data Centre and the FAO/WHO Programme should be compatible and a close link between the two should be maintained so that a better overall service is provided to potential users.

The Consultation, having considered the importance of a specialized referral-cum-data system for contaminants capable of meeting the requirements of the world scientific community, recommended that the UN agencies, particularly UNEP, strengthen the present FAO Fishery Data Centre in order that the required level of activity could be achieved as soon as possible, so that the much-needed specialised referral and data services could be provided immediately.

3. Requirements of Fish Quality Control Managers for Data on Contaminants in Aquatic Organisms

3.1 The Consultation was informed that there was a great need in the fields of fish inspection, quality control and international trade for information pertaining to contaminants in fishery stocks and fishery products.

3.2 Specific requirements include:

(i) lists of institutes involved in contaminant monitoring by region

(ii) levels of contaminants by species, species size and geographic area

(iii) trend analysis regarding accumulation/dissipation of concentrations of certain contaminants

(iv) analysis methodology.

3.3 It was emphasized to the Consultation what dire consequences result from lack of information and co-ordination of effort. The specific case of mercury contamination in fishery products was given, outlining the resultant loss of millions of dollars and valuable protein through destruction of contaminated fish.

4. Work completed by the FAO Fishery Data Centre on behalf of the UNEP project 'Data on Contaminants in Aquatic Organisms'

4.1 The Secretariat reviewed the overall operations of the FAO Fishery Data Centre and described the methodology and results of the work as it related to contaminants in aquatic organisms.

4.2 The FAO Fishery Data Centre, as a specialized agency existing within the World Data Centre system, is charged with the dissemination of world fishery management information to regional fisheries bodies, national governments and international fishery scientists. Such information items include potential yield, catch, catch per unit effort, and biological contamination parameters both in discrete and frequency distributional form.

4.3 Beginning in April 1974, the Fishery Data Centre initiated the development of an integrated computer system in order to meet the above informational requirements on an organized and timely basis through the utilization of the FAO IBM 370/145 computer. Files were created to handle many of the most important identifiers required for the handling of fishery data. Species, sub-area, gear-type, vessel type, effort type, countries, institutes, etc., were entered into the system code files in such a manner as to allow efficient up-dating.

4.4 One aspect of the work of the Fishery Data Centre includes the implementation of the UNEP project 'Data on Contaminants in Aquatic Organisms'.[1/]

1/ UNEP Project Document No.0502-73-003.

The returns from a questionnaire designed to capture information on institutions engaged in investigations on contaminants in aquatic organisms were compiled into a 'Directory of Institutes engaged in Pollution Investigations - Contaminants in Aquatic Organisms' published in March 1974. The directory was distributed accompanied by a letter soliciting the institutes to provide up-dated information on the elements contained in the directory and to send in subsidiary information. Additional institutes were identified through reference to the UNEP 'Directory of National and International Pollution Monitoring Programmes' as well as other sources. Both the original directory and the responses from the institutes were computerized and an up-dated version of the directory was issued in August 1974. By providing timely feed-back to the institutes, the Fishery Data Centre hoped to improve the overall information flow, and it is significant that many institutes which did not respond to the original questionnaire used the copy of the original questionnaire included in the directory to forward information on their pollution investigation activities.

4.5 Having established this initial register of institutes, the Fishery Data Centre engaged the services of a consultant for two months in the summer of 1974 in order to provide background information for a questionnaire which would seek more comprehensive information on institute activities.

4.6 The Expert Consultation commended the Fishery Data Centre on the effectiveness and speed of its action in this area, and recommended that all information and data concerning contaminants in aquatic organisms on a world-wide basis, be handled through the services of the FAO Fishery Data Centre.

4.7 The Consultation further requested that more detailed systems be developed regarding the institute file.

5. Design of 'Questionnaire on Data Inventories - Contaminants in Aquatic Organisms'

5.1 The Consultation considered the draft questionnaire prepared by the FAO/UNEP project and commended the project on the degree to which the draft covered the essential elements necessary for retrieval of information to the point of resolution required for current world requirements for information on monitoring of contaminants in aquatic organisms.

5.2 It was felt that a questionnaire of the kind envisaged should be as simple as possible in order to achieve a high percentage of returns from the potential contributers. A questionnaire, although simplified to a desired level, should nevertheless include educational elements in order to orient the contributing institutions to report on priority contaminants, desirability of intercalibration, etc. Information on instrumentation methodology, though useful, should be excluded from the questionnaire, as certain elements within this category of information would be open to misinterpretation or would provide no meaningful resolution. The presence or absence of intercalibration would provide adequate criteria for present purposes.

Towards simplifying the questionnaire the following specific alterations were suggested:

(i) the request for information via the form should be at the project level rather than at the institute level

(ii) information on age, length, weight and development stage should be gathered on a species by contaminant by area basis rather than on a project basis. It was felt that not all projects would be gathering these data routinely for all species, contaminants and areas.

(iii) origin of samples (including preservation method), data storage and information on research characteristics should be collected at the species/contaminant/area level.

5.3 The Expert Consultation approved a revised questionnaire (Appendix E) incorporating the recommended amendments, and requested that FAO print and distribute the questionnaire as soon as possible to institutions undertaking contaminant monitoring work. Most of these institutions are already identified in the FDC contaminant institute file.

5.4 The Consultation further recommended that the FDC conduct periodic surveys in order to determine changing instrumentation methodology in contaminant monitoring and/or research, as well as seek information on new contaminants included in monitoring programmes, and disseminate such information to institutes as and when required.

6. Design of Outline of 'Directory of Institutions Engaged in Pollution Investigations - Contaminants in Aquatic Organisms - Data Inventories'

6.1 The Consultation noted the requirement of such a directory and recommended that the Directory be produced by the FAO Fishery Data Centre according to the specifications outlined in the following paragraphs.

6.2 The general structure of the directory should be organized as -

Part A: Indexes of Contaminant, Species and Region which will efficiently reference

Part B: Detailed attributes of each project conducting investigations of contaminants in aquatic organisms.

6.3 Indexes (Part A) should be constructed on a 2 category basis and, for the first edition of the directory, should comprise:

(i) Contaminant by species

(ii) Species by contaminant

(iii) Area

Besides each index element will appear the list of pages where projects meeting the index specification may be found in Part B.

6.4 Projects appearing in Part B will be sorted by country by institution in order to enable Part B to be used as a country reference as well.

6.5 Part B will include the following elements on a project basis -

(i) Country name

(ii) Institution name

(iii) Project Name

(iv) Project Status (if the project is in the planning stage, date of expected implementation will be printed).

(v) Expected duration of project

(vi) Purpose of project

(vii) By Contaminant by Species by Region

a) presence or absence of intercalibration

b) whether or not species presently utilized for human/animal consumption

c) whether or not corresponding biological data (length, weight, age or development stage) are collected

d) origin(s) of samples

e) sample preservation method(s)

f) presence or absence of simultaneous water or sediment samples

g) number of sampling stations/sites

h) sampling frequency (per year)

i) number of individual samples taken per year

j) date data start and end (if not continuous monitoring programme)

k) form in which data stored (computerized, in-house reports published)

Any footnotes required to clarify these items will be entered at the end of the project description.

6.6 The Consultation further noted that publication of the following reports could be considered by the FAO Fishery Data Centre:

(i) specifically designed detailed directories prepared for use on an ad hoc basis in comparing monitoring facilities among institutions or projects

(ii) preparation of national directories to projects for use by national governments

(iii) summary tables, charts, statistics and maps which may be used in yearbooks, handbooks, manuals, reports, etc., for educational or background purposes

(iv) catalogues of data available

(v) specialized displays for ad hoc requests (e.g., those institutes monitoring mercury in North Atlantic swordfish and that have data stored in a computerized form).

7. Requirements for a World Review and Sampling Yearbook of Contaminant Levels

7.1 The Consultation identified four integral attributes of an effective monitoring programme. They are, in addition to the mapping of contaminant levels in time and space, the capability to enable decisions to be reached on trends, on the importance of these trends, and on when to intervene. As a world repository for data on contaminants in aquatic organisms, the FAO Fishery Data Centre will be uniquely situated to develop this capability on a global basis and the Consultation therefore recommended that the FDC commence this work as soon as is practicable.

7.2 The Consultation also recommended that the FDC undertake to ensure that data submitted by the various institutes conform to acceptable standards of sampling, chemical analysis and statistical analysis (see Section 8) so that the data may be suitable for inclusion in FAO publications.

7.3 The members agreed that the primary purpose of such reports as may emanate from the FAO Fishery Data Centre should be to provide information to the world

scientific community engaged in the assessment of the effects of contaminant concentrations upon living aquatic resource populations. However, the Consultation also noted that these data are of profound significance to all resource managers, to social scientists, to administrators, and to legislators. The Expert Consultation thus requested the FDC to compile, analyze and display contaminant data in a form intelligible and manageable to these other users. They further recommended that the project integrate, wherever possible, contaminant data with other biological, economic and demographic information resident in the FAO Fishery Data Centre to supplement the on-going programme of the FAO 'World Appraisal of Fishery Resources'.

7.4 The Consultation recommended that the FAO Fishery Data Centre develop a plan to report contaminant levels on a regional basis in conjunction with data on standing stock, potential yield, catch, catch per unit effort, and other relevant measures. A pilot study should be undertaken within an FAO regional fisheries body to test the feasibility and usefulness of trend analysis.

7.5 The Consultation noted the work of the Smithsonian Institution in collecting and disseminating information on short-lived natural and man-made phenomena having an impact on the environment and ecological systems. The Consultation emphasized the value of expanding and intensifying such work in order to focus on particular events and incidents affecting aquatic organisms and recommended that the FAO Fishery Data Centre investigate the feasibility of collaborating with the Smithsonian or similarly qualified institutions in the course of developing a 'Current Awareness Service on Contaminant Events' which would provide world environmental managers with information on how a particular contaminant event (e.g. oil spill) was handled.

8. FAO 'Manual of Methods for the Collection, Analysis and Reporting of Data on Contaminants in Aquatic Organisms' for the FAO Fishery Data Centre pamphlet on Data Exchange

8.1 The Consultation, recognizing the great need for increasing national capabilities especially in developing countries, recommended that FAO, with the support of UNEP and co-operative government programmes, develop a long-term training programme in the monitoring of contaminants in the aquatic environment and, in doing so, develop with the collaboration of member governments a network of specialized institutions prepared to take an active part in such a training programme.

8.2 The Consultation recommended that the FAO Fishery Data Centre should undertake the co-ordination of such programmes outlined in 8.1 as they relate to training in techniques for the collection and reporting of contaminant statistical data and that identification of the specialized institutions outlined in 8.1 be done through FAO Fishery Data Centre files.

8.3 The Consultation recommended that the FAO Fishery Data Centre undertake the creation of a manual on contaminant data collection and reporting. The manual should include the following sections:

(i) Introduction

(ii) Sampling of Biological Material

(iii) Chemical Analysis

(iv) Data Analysis and Recording Forms

and should provide guidelines regarding:

(a) requirement for intercalibration programme

(b) utilization of a representative of a dominant ecological niche (e.g. pelagic) for monitoring purposes

(c) utilization of specialized institutes (if possible on a regional basis) in order to handle specimens from institutes unable to conduct their

own chemical/mathematical analyses. Such specialized institutes maybe identified in the directory outlined in Section 6.

8.4 The Consultation recommended that the FAO Fishery Data Centre produce a pamphlet outlining methods for reporting contaminant level data to the Fishery Data Centre and that this pamphlet should include a data recording form.

9. Future Work of the Expert Consultation on Contaminant Monitoring

9.1 The Consultation noted that the project 'Data on Contaminants in Aquatic Organisms' would, once initiated, continue to develop through the iterative process. The members foresaw the probability that, for example, ambiguities, redundancies, and other technical defects on the questionnaire or in the directory would be identified by respondents and corrected by the FAO Fishery Data Centre as a matter of course. They also noted that the effects of changing technology, scientific methodology and general knowledge will require appropriate modificiations in the monitoring programme. The Consultation expressed confidence in the capacity of the FAO Fishery Data Centre to respond effectively to these circumstances and anticipated no need for further consultation in the foreseeable future. They indicated their willingness, however, to make themselves available to the project at such times as may be required. In the meanwhile, the FAO Fishery Data Centre will continue to seek advice from the members by correspondence in the implementation of the recommendation made by the Consultation.

APPENDIX A

LIST OF PARTICIPANTS

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APPENDIX B

A G E N D A

		Document No. ECCM-1/
1.	Procedural Matters	
1.1	Opening of the Session	1A
1.2	Election of Chairman	1A
1.3	Adoption of Agenda and Timetable	1A
2.	Background to FAO/UNEP Project 'Data on Contaminants in Aquatic Organisms'	
2.1	Information Requirements of the world community and specific requirements of FAO/UNEP	3A
2.2	Review by the Secretariat of work completed	2A, 2B, 2C
3.	World Contaminant Data Inventories	
3.1	Questionnaire on Data Inventories - Contaminants in Aquatic Organisms	3B
3.2	Directory of Institutions Engaged in Pollution Investigations - Contaminants in Aquatic Organisms - Data Inventories	3A, 3B, 3C
4.	Monitoring of Contaminant Levels in Aquatic Organisms	
4.1	FAO/UNEP World Review and Sampling Yearbook	4A
4.2	Advice on further implementation of FAO/UNEP project	4A
5.	Contaminant Data Collection and Reporting in Developing Countries	
5.1	Production of field/laboratory manual	5B
5.2	Production of FAO Fishery Data Centre pamphlet	
6.	Future Work of the Expert Consultation on Contaminant Monitoring	

LIST OF DOCUMENTS

Document No. ECCM-1/		
1A		Prospectus (Agenda, Timetable, List of Documents, List of Participants)
2A	a)	Questionnaire for Institutions Engaged in Pollution Investigations - Contaminants in Aquatic Organisms
	b)	Directory of Institutions Engaged in Pollution Investigations - Contaminants in Aquatic Organisms (First edition and revised edition, computerized version)
2B		Fishery Management Information System: Institute Register - Contaminant Investigations
2C		Fisheries Circular No.384, "Management Information System - World Fisheries"
3A		Development of an International Contaminant Data and Referral System
3B		Draft Questionnaire for Institutions Engaged in Pollution Investigations - Contaminant Data Inventory
3C		Pre-draft outline of "Directory of Institutions Engaged in Pollution Investigations - Contaminant Data Inventory"
4A		Concepts in the development of an FAO/UNEP World Review and Sampling Yearbook of Contaminant Levels in Aquatic Organisms
5B		Pre-draft outline of "Manual on Contaminant Data Collection and Reporting"

APPENDIX C

SUMMARY OF RECOMMENDATIONS

Section

2. That UN agencies, particularly UNEP, strengthen the present FAO Fishery Data Centre.

4.6 That world data concerning contaminants in aquatic organisms be handled through the services of the FAO Fishery Data Centre.

5.3 That the FAO Fishery Data Centre distribute the Questionnaire on Data Inventories by end-1974.

5.4 That the FAO Fishery Data Centre conduct a monitor programme in order to identify current instrument methodology in world institutes.

6.1 That the FAO Fishery Data Centre produce a Directory on Contaminant Data Inventories by end 1975.

7.1 That the FAO Fishery Data Centre present contaminant level data in such a manner as to enable decisions to be reached on the importance of trends and on the need to intervene.

7.2 That the FAO Fishery Data Centre undertake to ensure that data submitted by the various institutes conform to acceptable standards of sampling procedures, chemical analysis and statistical analysis.

7.3 That the project integrate contaminant data with other biological, economic and demographic information resident within the FAO Fishery Data Centre as part of the FAO World Appraisal of Fishery Resources.

7.4 That the FAO Fishery Data Centre develop a plan to report contaminant levels on a regional basis and that a pilot study should be undertaken within a FAO regional fisheries body in order to test the feasibility and usefulness of trend analysis.

7.5 That the FAO Fishery Data Centre investigate the feasibility of developing a current awareness service on contaminant events in collaboration with the Smithsonian Institution or similarly qualified organisations.

8.1 That FAO, with the support of UNEP and co-operative government programmes, develop a long-term training programme in the monitoring of contaminants in the aquatic environment and, in doing so, develop with the collaboration of member governments a network of specialized institutions prepared to take an active part in such a training programme.

8.2 That the FAO Fishery Data Centre co-ordinate training in the handling of contaminant statistical data.

8.3 That the FAO Fishery Data Centre develop a manual on contaminant data collection suitable for use in developing countries.

8.4 That the FAO Fishery Data Centre produce a pamphlet outlining FDC data exchange mechanisms.

APPENDIX D

PLAN OF ACTION

By 15 February 1975 - That the 'Questionnaire on Data Inventories - Contaminants in Aquatic Organisms' be distributed.

By 31 March 1975 - That a form be designed in order to capture information on instrument methodology employed by world institutes.

By 31 August 1975 - That the first edition of 'Directory of Institutions Engaged in Pollution Investigations - Contaminants in Aquatic Organisms - Data Inventories' be published.

By 31 December 1975 - That significant steps be taken by the FAO Fishery Data Centre in order to capture data relating to actual contaminant levels.

By 30 June 1976 - That an FAO Manual on Contaminant Data Collection and Reporting be published as well as an FAO FDC pamphlet outlining data exchange mechanisms.

APPENDIX I

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

FISHERY DATA CENTRE

QUESTIONNAIRE ON DATA INVENTORIES-CONTAMINANTS IN AQUATIC ORGANISMS

Please read attentively the accompanying instructions before completing this form. Write in capital letters or type.

A. PROJECT IDENTIFICATION

Name of Project:

Name of Projectleader:

Name of Institution:

Country:

Address:

Telephone: Telex/Cable:

Please indicate the address/telex/cable to which enquiries about data should be sent if this address is different from that listed above:

Date questionnaire filled in: year month day ☐☐☐☐☐☐

Name of person filling in this questionnaire:

Signature:

WI/F5903

B. ADDITIONAL INFORMATION

Status of project: (Please indicate year/month; if project is continuing indefinitely, indicate start only)

	start	end
Planning stage	☐☐☐☐	☐☐☐☐
Operational	☐☐☐☐	☐☐☐☐

If this project is part of a baseline and/or cooperative programme(s), please name this/these programme(s) - (include acronym if applicable):

Does your work include the identification of possible biological accumulators?

yes ☐ no ☐

Do you make any attempts to detect and/or identify substances which have so far not been recognized as contaminants?

yes ☐ no ☐

Please describe the purpose of this project (50 words or less):

C. REMARKS

D. CONTAMINANT CODES

Inter-calib.		
		Pesticides, PCB and Others
☐	100	αBHC
☐	101	γBHC
☐	102	Dieldrin
☐	103	ppDDE
☐	104	ppTDE
☐	105	ppDDT
☐	106	opDDT
☐	107	Σ DDT
☐	108	Endosulfan
☐	109	Organophosphorus compounds
☐	110	Carbamate compounds
☐	111	Herbicides
☐	112	PCB's (polychlorinated biphenyls)
☐	113	PCT's (polychlorinated terphenyls)
☐	114	PCP (penta chloro phenol)
☐	11A	
☐	11B	
☐	11C	
		Organic chemicals
☐	120	Halogenated aliphatic hydrocarbons (not specified elsewhere)
☐	121	Halogenated aromatic hydrocarbons (not specified elsewhere)
☐	122	Halogenated phenols
☐	123	Phenols
☐	124	Aromatic amines
☐	125	Halogenated aromatic nitro compounds
☐	126	Halogenated quinones
☐	127	Phthalate esters
☐	12A	
☐	12B	
☐	12C	
☐	12D	
☐	12E	
		Petroleum hydrocarbons
☐	130	Total oil (by infrared)
☐	131	Total oil (by fluorescence)
☐	132	Σ n-alkanes
☐	133	Σ aromatic hydrocarbons
☐	134	Σ polynuclear aromatic hydrocarbons
☐	135	Heterocompounds

Inter-calib.		
		Petroleum hydrocarbons (cont'd)
☐	136	Sulphur containing compounds
☐	13A	
☐	13B	
☐	13C	
		Metals & Other inorganic chemicals
☐	140	Inorganic mercury
☐	141	Organic mercury
☐	142	Total mercury
☐	143	Copper
☐	144	Zinc
☐	145	Chromium
☐	146	Cadmium
☐	147	Arsenic
☐	148	Antimony
☐	149	Bismuth
☐	150	Selenium
☐	151	Fluoride
☐	152	Cyanide
☐	153	Lead
☐	15A	
☐	15B	
		Radioactive substances
☐	160	^{90}Sr
☐	161	^{137}Cs
☐	162	^{60}Co
☐	163	Total β activity
☐	164	^{55}Fe
☐	165	^{65}Zn
☐	166	^{106}Ru
☐	167	^{95}Zr
☐	16A	
		Biological contaminants
	170	Diseases
	171	Parasites
	172	Bacteria (specify under "Remarks")
	173	Other microorganisms (specify under "Remarks")
☐	174	Biotoxins (e.g. dinoflagellate metabolites, ciguaterra, etc.)
☐	175	Antibiotics (specify under "Remarks")

E. GEOGRAPHIC CODES

2 TYPE OF WATERBODY SAMPLED

Fresh water		Brackish water		Marine water	
210	Aquacultural installation	220	Aquacultural installation	230	Aquacultural installation
211	Lake	221	Lake	231	Lagoon
212	River	222	Swamp	232	Coastal (intertidal and flats)
213	Swamp	223	Estuary	233	Offshore
		224	Lagoon		
		225	Coastal		
		226	Offshore		

3 INLAND WATER AREA

				Please give only name of country if one of the former names is not applicable:
300	Lake Erie			
301	Lake Huron	308	Lake Aral	
302	Lake Superior	309	Lake Balkash	31A
303	Lake Michigan	310	Lake Baikal	31B
304	Lake Ontario	311	Caspian Sea	31C
305	Lake Winnipeg	312	Lake Victoria	31D
306	Lake Ladoga	313	Lake Tanganyika	31E
307	Lake Onega	314	Lake Nyasa	31F

3 MARINE AND BRACKISH WATER AREA

320 North Atlantic Ocean
321 Norwegian Sea
322 North Sea (incl. Skagerak)
323 Baltic Sea (incl. Kattegat, Belt Sea)
324 Irish Sea
325 English Channel
326 Bay of Biscay
327 Black Sea
328 Mediterranean Sea
329 Caribbean Sea and Gulf of Mexico
330 Gulf of St. Lawrence
331 Hudson Bay
33A Other, specify:

340 South Atlantic Ocean (incl. tropical zone)
341 Gulf of Guinea
342 Eastern shelf zone (incl. southern Africa)
343 Western shelf zone (incl. Patagonian shelf)
34A Other, specify:

350 Northern Pacific Ocean (incl.tropical zone)
351 Bering Sea
352 Sea of Okhotsk
353 Sea of Japan
354 East China Sea (incl. Yellow Sea)
355 South China Sea
356 Indonesian waters (incl. Java Sea, Celebes Sea, Sulu Sea, Flores Sea, Banda Sea, Molucca Sea, Makassar Strait)
357 Gulf of Panama
358 Gulf of California
359 Gulf of Alaska
35A Other, specify:

360 South Pacific Ocean
361 N.E. South Pacific Ocean
362 N.W. South Pacific Ocean
363 S.E. South Pacific Ocean
364 S.W. South Pacific Ocean
365 Central South Pacific Ocean
36A Other, specify:

370 North Indian Ocean
371 Red Sea
372 Gulf of Aden
373 Persian Gulf
374 Gulf of Oman
375 Arabian Sea
376 Bay of Bengal
377 Andaman Sea
378 Strait of Malacca
37A Other, specify:

380 South Indian Ocean
381 Timor Sea
382 Arafura Sea
383 Great Australian Bight
384 Mozambique Channel
385 Other, specify:

390 Arctic Seas
391 Barents Sea
392 Greenland Sea
393 Baffin Bay
394 Beaufort Sea
39A Other, specify:

395 Antarctic Seas
396 Ross Sea
397 Weddell Sea
39A Other, specify:

F. SPECIES SAMPLING AND DATA HANDLING

Scientific name of species or next higher taxon or community (Add body part(s) if applicable)	Description of samples				Preservation of samples								Origin of samples				Human consumption	No. of stations/sites
	Length	Weight	Age	Development stage	Not preserved	Iced	Frozen	Salted	Dried	Formaldehyde	Alcohol	Other *	Field sampling	Commercial catches/landings	Aquaculture	Other *		
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* Specify under "Remarks"

Sampling			Raw data					Sampling area		Bioassays (Specify contaminants under "Remarks")			Contaminants (Use codes D)			
Frequency per year	No. per year	Simultaneous water/sediment	Data collected start year	Data collected end year	Computerized	Inhouse reports	Published	Type of waterbody	Geographic area	Toxicity test	Experimental food chain	Other bioassay				
								2	3				1	1	1	1
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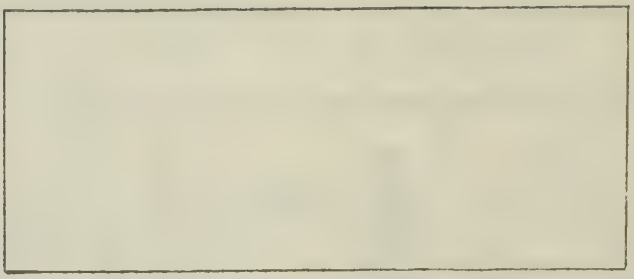

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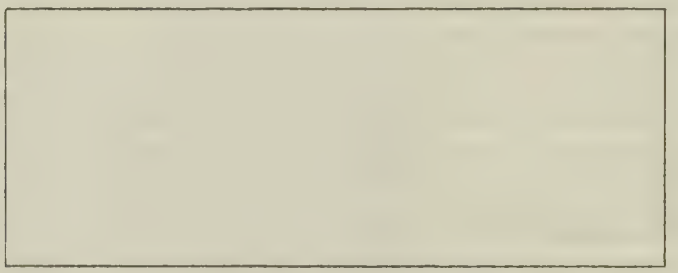
If your address is not correct, please print or type your proper address below:



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FISHERY DATA CENTRE
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